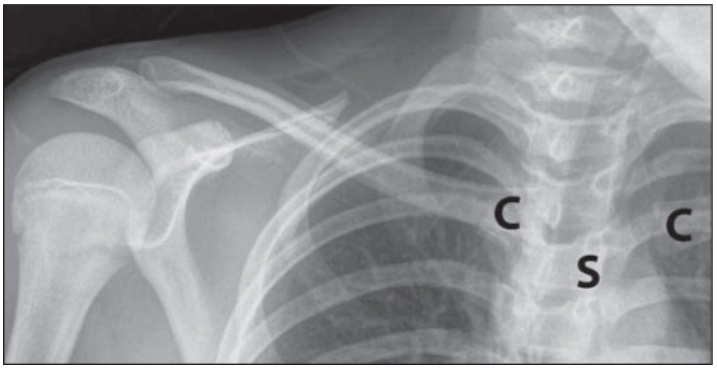


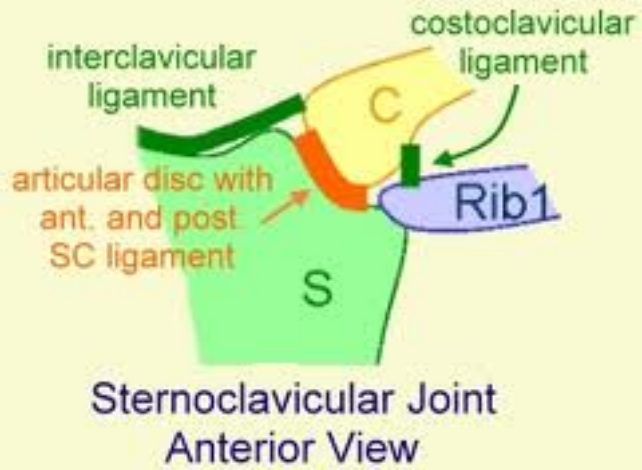
Case 2

30 year old involved in a MVA complaining of chest pain. Bruising over the right upper chest.

Your Diagnosis

Diagnosis: Posterior Sterno-clavicular dislocation [PSCD]

A posterior sterno-clavicular [[PSCJ] dislocation occurs when clavicle is displaced posteriorly. PSCJ dislocations are uncommon [2% of shoulder girdle dislocations]



Classically, anterior sternoclavicular dislocation is seen much more frequently, with a 20:1 ratio. This is, in part, due to a greater strength of the posterior sternoclavicular ligament compared with the anterior ligament.

Four strong ligaments (intra-articular disk and costoclavicular, interclavicular, and capsular ligaments) anchor the clavicle to the sternum in a saddle-type joint that allows for both articulation and stability of the clavicle.

A PSJD is considered a medical emergency and requires immediate attention due to the vital structures and organs that lie immediately posterior to the joint. The innominate artery and vein lie posterior to the right sternoclavicular joint, and the trachea and esophagus lie posteriorly.

On the left side, the common carotid artery and left subclavian vein are located directly posterior to the sternoclavicular joint. Compression or damage to the great vessels, trachea, esophagus, or lungs that arise from sternoclavicular dislocations could result in significant morbidity and mortality, if not properly managed.

MECHANISM OF INJURY

Dislocation involves rupture of the 4 main ligaments and displacement of the clavicle behind the manubrium. The main mechanism that contributes to the dislocation involves a direct AP force applied to the medial aspect of the clavicle. A secondary mechanism that may cause a PSCD requires a great amount of direct or indirect force applied posterolaterally to the shoulder and arm.

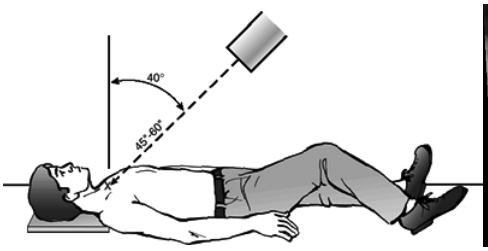
CLINICAL FINDINGS

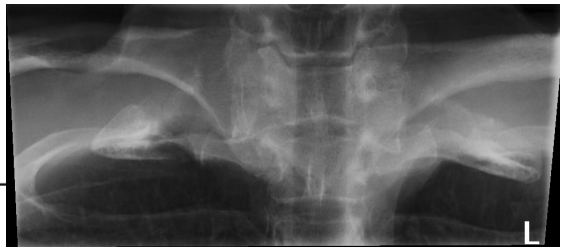
1. Shoulder pain, chest pain
2. Complaints of dyspnea, dysphagia, or dysphonia.
3. Localized soft tissue swelling is also common, accompanied by a marked decreased ROM in the shoulder.

DIAGNOSTIC IMAGING

1. Standard chest radiographs: The presence of a posterior sternoclavicular dislocation may not always be detected on AP views. Asymmetry of the 2 clavicles and manubrium usually indicates a sternoclavicular dislocation, although this may not be well visualized in subtle dislocations.

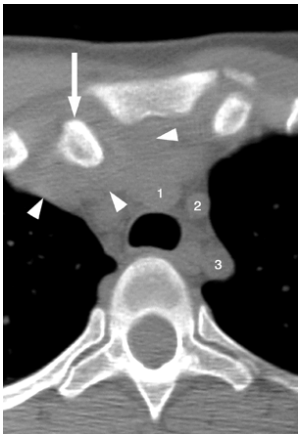
2. A serendipity view (40 degrees cephalic tilt) better visualizes a possible posterior sternoclavicular dislocation.

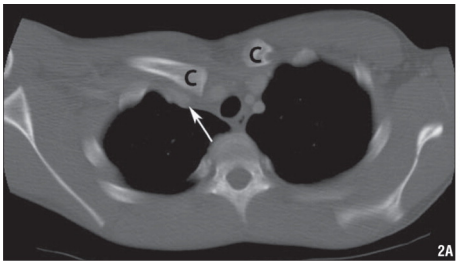




3. Computed tomography (CT)

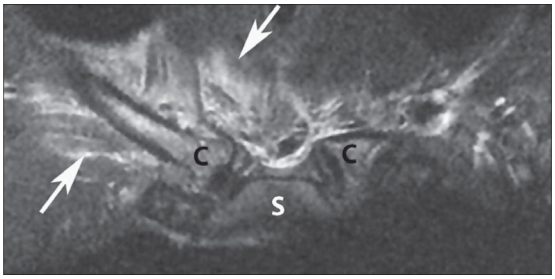
Allows for better characterization of a PSCD and can detect fractures that may not be appreciated on radiographs.





4. Computed tomography angiography is recommended for the evaluation of any acute vascular injuries that may accompany a PSCD.

5. MRI can assess for neurovascular injuries if symptoms after reduction or complicated cases. Post reduction PSJD. Increase signals suggesting bleeding around.



6. Barium swallow:

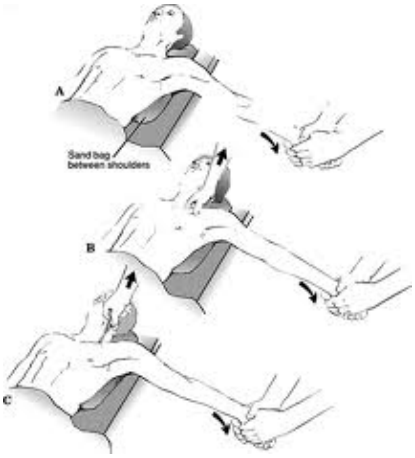
MANAGEMENT

Posterior dislocations may have significant intrinsic morbidity and potentially fatal complications

Because the medial epiphysis is the last to ossify and close (approximately at 19 years and between 23 and 25 years, respectively), clavicle shaft displacements seen with physeal disruptions at the medial end of the clavicle in adolescents and young adults may mimic sternoclavicular dislocations

If there is no associated vascular compression or disruption demonstrated on CT angiography, then closed reduction within 48 hours of the injury is typically performed. With the patient under GA, a towel clip or sterile clamp is inserted percutaneously to pull the medial clavicle anteriorly back to its normal location. An audible click may be heard with

successful reduction. Subsequently, the patient is immobilized in a figure-8 cast for 6 to 8 weeks to ensure proper healing.



If attempts at closed reduction are unsuccessful in properly relocating the joint, then open reduction is performed in the presence of a cardiac surgeon. Suture fixation through the joint or the first rib and locking plate osteosynthesis with double-threaded screws are the 2 most popular methods of treatment, both with high success rates.
Kirschner wire fixation is generally not recommended due to known cases of wire migration that have led to serious complications or deaths.

The complication rate has been reported to be as high as 25% with posterior dislocation. Complications include the following:

- Pneumothorax
- Laceration of the superior vena cava
- Venous congestion in the neck
- Esophageal rupture
- Subclavian artery compression
- Carotid artery compression
- Voice changes
- Severe thoracic outlet syndrome